DOCUMENT RESUME

ED 354 611 EA 024 672

AUTHOR	Johnson, James H.
TITLE	Total Quality Management in Education.
INSTITUTION	Oregon School Study Council, Eugene.
REPORT NO	ISSN-0095-6694
PUB DATE	Feb 93
NOTE	53p.
AVAILABLE FROM	Oregon School Study Council, University of Oregon, 1787 Agate Street, Eugene, OR 97403 ($7 prepaid, nonmembers; $4.50, members; quantity discounts).
PUB TYPE	Viewpoints (Opinion/Position Papers, Essays, etc.) (120)
JOURNAL CIT	OSSC Bulletin; v36 n6 Feb 1993
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Educational Change; *Educational Improvement; *Educational Quality; Elementary Secondary Education; Excellence in Education; Group Unity; *Human Relations; Organizational Change; *Organizational Development; *Participative Decision Making
IDENTIFIERS	*Oregon; *Total Quality Management

ABSTRACT

Ways to apply the concepts and processes of Total Quality Management (TQM) to education are discussed in this document. Following the introduction and the preface, chapter 1 provides a historical overview and describes the four cornerstones of TQM--an understanding of systems, psychology, knowledge, and statistics. Chapter 2 describes some of the common meanings of terms used in TQM (benchmarking, continuous improvement, costs, customers, output, paradigm, quality, and quality circles). The third chapter examines how to translate TQM from business to education, drawing on Deming's 14 points (1986). Chapter 4 offers guidelines for implementing TQM with regard to changing leadership roles; recognizing policy considerations; identifying barriers to quality; developing the core mission; setting goals; training staff; planning, doing, checking, and acting; measuring quality; and evaluating students. The conclusion points out that the open-ended nature of TQM means that there is no single, correct point of departure for using its tools and tenets. The greatest benefit of pursuing TQM is that giving workers a stake in their workplace constitutes emancipation from the control of outmoded practices. (Contains 25 references.) (LMI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED354611

TOTAL QUALITY MANAGEMENT IN EDUCATION

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
P. Burke
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

James H. Johnson

Oregon School Study Council
February 1993 • Volume 36, Number 6

BEST COPY AVAILABLE

EA 024 672

OSSC BULLETIN

TOTAL QUALITY MANAGEMENT IN EDUCATION

James H. Johnson

Oregon School Study Council
February 1993 • Volume 36, Number 6

ISSN 0095-6694
Nonmember price: $7.00
Member price: $4.50
Quantity Discounts:
10-24 copies - 15%
25-49 copies - 20%
50+ copies - 25%

OSSC STAFF

Philip K. Piele, Executive Secretary
Stuart C. Smith, Editor
Linda S. Lumsden, Associate Editor and Production
Deborah Drost, Assistant Editor and Production
Audrey Muller, Publications Sales

OSSC GOVERNING BOARD

Dave Cone, School Board Member, Gresham Grade SD 4
Mike Delvin, School Board Member, North Bend SD 13
James Maxwell, Superintendent, Lane ESD
Philip K. Piele, Professor and Executive Secretary, Oregon School Study Council
David Conley, Associate Professor, Division of Educational Policy and Management, University of Oregon
Bill Korach, Superintendent, Lake Oswego SD 7J
Bob Stalick, Superintendent, Greater Albany Public SD 8J
Diane Harr, School Board Member, Oregon School Boards Association

OREGON SCHOOL STUDY COUNCIL

1787 Agate Street
University of Oregon
Eugene, Oregon 97403
(503) 346-5044
Fax: (503) 346-2334

The University of Oregon is an affirmative action, equal opportunity employer.

Preface

If there is one aspect of the human experience today that distinguishes us from generations past, it has to be the accelerating rate of change. The problems and needs of our communities and institutions evolve daily. The temptation is not to solve problems but to outlive them.

While rapid social change creates stress in individuals, it can shatter public and private organizations. Outmoded systems and patterns of thought result in Chapter 11 bankruptcies, public cynicism for politicians and bureaucracies, products that don't work, and students who merely endure learning.

It is as though our ship of state, designed for the open ocean, has entered uncharted waters full of currents and shoals. We find the reefs only when we scrape against them and our hull wears thin. To stay afloat, we must do a better job of identifying and responding to all the uncertainties and new realities appearing in our path. But how?

A hint of an answer might be found in this Bulletin. It's not a chart of the new waters we navigate; it is a process through which our ship's crew can become better pilots, helmsmen, navigators, engineers, and deck hands. This process worked, and continues to work, for other crews on other craft. If it can work somewhere, then it should work anywhere.

James H. Johnson is a professional writer whose work has appeared in a number of national magazines. In October 1991, he wrote another Bulletin titled *Student Voice: Motivating Students Through Empowerment*. He has also developed training programs for a number of Fortune 500 firms including IBM, AT&T, and Minnesota Mining and Manufacturing (3M). He is currently manager of technical writing for D2000, a training and consulting firm located in Springfield, Oregon.

Contents

	Preface	iii
	Introduction	1
1.	**An Introduction to Total Quality Management**	3
	Revitalizing Japan	3
	Good Quality Stems from Good Design	4
	Bringing TQM Back to America	5
	Cornerstones of TQM	6
2.	**The Language of Total Quality**	11
	Benchmarking	11
	Continuous Improvement	12
	Costs	12
	Customers	13
	Output	14
	Paradigm	14
	Quality	15
	Quality Circles	16
3.	**Translating TQM from Business to Education**	17
	Total Quality Education	18
	Deming's Fourteen Points	18
4.	**Implementing TQM**	27
	Total Quality Leadership	27
	Policy Considerations	28
	Barriers to Quality	29
	Developing the Core Mission	31
	Goal Setting	33

Training 34
Plan, Do, Check, Act 35
Measuring Quality 37
Measurements and Grades 38

Conclusion 42

Bibliography 43

Interviews 45

Introduction

> "Have you ever seen a teacher who loves his or her job, who is involved and enthusiastic, but who is a bad teacher? I haven't." (Enid Brown interviewed by Ron Brandt 1992)

Imagine a "quality" school. Imagine engaged, capable teachers, instructing with passion. Imagine students seeking new opportunities to learn and create, inventing new ways of using their growing abilities, concerned parents working with the school, and an administration openly committed to the pursuit of quality. Imagine a school district that produced young adults committed to lifelong learning and growth and armed with the skills and desire to contribute to society.

As you read this Bulletin, keep your own vision of quality in the back of your mind and use it to keep your focus. No one can really understand the transformational power of Total Quality Management without a personal vision of quality and, conversely, an awareness of the enormous costs we pay for our current lack of quality in education.

Total Quality Management (TQM), or Total Quality Learning (TQL), offers no insight or blueprint on how to change an organization to achieve higher quality results, but it does create an environment in which people develop the ability, knowledge, motivation, and opportunity to improve. People work better together, and this coordination and alignment of work activities creates improvements in quality.

The ideas you'll encounter within the heading of TQM provide an intellectual feast of discussion and self-discovery. Where else can you find candid assertions that directly contradict traditional beliefs about how to manage and relate to people in our organizations? What other improvement strategy asks for a life-long commitment to learning and self-improvement? How often are you challenged to confront the basic assumptions about why people behave in certain ways? When did you last reinvent your role in the workplace?

There are three things you need to keep in mind as we explore quality. The first is that TQM principles, when properly applied, will result in quality improvements. There is no question about it. Second, the improvements generally require a transformation of the organization and the ways people perceive their roles in that organization. Finally, the tenets of TQM, once understood, go beyond our careers and provide tools for improving the quality of every aspect of our lives. The same methods of continuous improvement we apply to our factories and schools also apply to our neighborhoods and families.

> TQM is not a prescription for some sort of remediation. It is not an adjunct to existing processes. It is means of continuously reinventing the system to achieve the goals of the organization.
>
> Source: Texas Association of School Administrators (1992)

Chapter 1

An Introduction to Total Quality Management

Step through TQM's door and the first person you'll want to meet will be W. Edwards Deming, credited as the founding father of Total Quality Management. Deming grew up in the twenties and thirties, a time when all you needed to succeed as a factory worker was the ability to work long hours at extremely boring jobs. Most industrial tasks required little or no formal schooling and illiteracy rates were high. Workers were encouraged not to think but simply follow orders. The management style of the day was based on the teachings of Frederick Winslow Taylor, a mechanical engineer who pioneered the use of time-and-motion studies to improve operational efficiency in both men and machines.

Taylor taught American industry to view every worker as a "cog in the giant industrial machine, whose job could be defined and directed by appropriately educated managers administering a set of rules" (cited in John J. Bonstingl, March 1992). The principle was "Scientific Management" or management by objectives. Key terms included "compliance, control, and command."

Today, *Taylorism*, as it is sometimes called, remains an important component of business school curriculums and continues to shape the workplace of millions. But there is a problem with treating people like cogs. As we'll see, Taylorism stifles people's willingness to be creative, motivated, and committed to improving the quality of the work they produce. Enter Deming.

Revitalizing Japan

Immediately after World War II, the Truman Administration faced

serious problems in Japan. Fostered by abysmal economic conditions, the communists were gaining widespread popular support. Truman and his advisors knew keeping the communists out of power required the revitalization of Japan's economy. This meant increasing exports, but at that time "Made in Japan" was a synonym for junk.

Japanese manufacturers needed to learn to produce higher quality goods to compete in world markets. To assist the process, Bell Labs loaned the government several consultants. Bell achieved prominence in quality control largely through the work of Walter Shewhart. Shewhart demonstrated that making good phones had nothing to do with inspecting every one and pulling bad ones off at the end of the assembly line (the traditional and very costly approach to quality control). Instead, changes in manufacturing processes should be made so defective phones don't get made in the first place.

Good Quality Stems from Good Design

According to Shewhart, 80 percent of the quality problems of any output (product or service) arise from the design of the system that produced the output. Only 20 percent of the problems arise from the actions of individual workers. In other words, compliance and control of the workers could only address a fifth of the conditions leading to poor quality. The other four-fifths was under the direct control of top management: the people responsible for the design of the system.

In 1950, W. Edwards Deming, who had worked with Shewhart, met with Japan's industrial leaders. In this meeting Deming described an economic chain reaction whereby higher quality would result in lower production costs. Consumers, in turn, would be offered higher quality goods at lower prices. The result would be increased market share. Deming promised the Japanese that they could become serious players in the world's marketplaces within five years if they practiced what we now call TQM.

This presentation inspired Ichiro Ishikawa, Japan's top industrialist, to support Deming's quality crusade. TQM became the modus operandi for Japanese businesses. Four years later, one year before Deming predicted, Japan began to fulfill Deming's expectations.

It would be simplistic to attribute Japan's progress solely to the teachings of Deming. The $3 billion spent by the U.S. in Japan during the Korean War also played a key part. But don't try to downplay Deming's role among the Japanese. Today Deming is revered in Japan as the key to their resurgence as an economic superpower. The Deming prize is the most prestigious award any Japanese business or industry can achieve.

Bringing TQM Back to America

And in the U.S.? After the war American manufacturers focused solely on meeting the ever growing demand for goods and services, and most saw little need to change. But the quality revolution in Japan continued, and Americans increasingly turned to Japan for autos, motorcycles, and consumer electronics. Entire American industries suddenly found that they could not compete and they didn't know why.

On June 24, 1980, in reaction to the growing concern, NBC broadcast a special titled, "If Japan Can, Why Can't We?" The show reintroduced Deming to Americans and brought his ideas for change back to America. The show started a debate over quality in the American business community, a debate that continues today.

In 1983, Ford Motor Company asked Deming to help them improve the quality of their automobiles. Deming delivered a series of presentations and training sessions and never talked about the quality of cars. His focus was on how the system was managed. Deming taught Ford that you cannot order a worker to do quality work since an individual worker is responsible for only a fraction of the quality of the finished product. After all, the workers didn't order the raw materials, design the cars or the assembly line, develop their training programs, manage their daily activities, or control the budget. Why then hold them primarily accountable for the final results?

> Systems that are based on control, compliance, and command stifle creativity, loyalty and optimal performance. In such systems, fear, cynicism, apathy, and low productivity spread like a crippling disease throughout the entire organization.
>
> Source: Bonstingl, March 1992

In 1986, three years after beginning their quest for higher quality, Ford introduced the Taurus/Sable line of cars. The vehicles won major quality awards, earned glowing magazine reviews, and were widely accepted by consumers. In 1992, the Taurus surpassed the Honda Accord as the best-selling car in America.

But can TQM, with its roots in business, offer anything to educators? John Jay Bonstingl, a TQM consultant, believes so. "Although the philosophy of Total Quality Management," he writes, "springs from the world of business, it transcends the narrow commercial imperatives of increased productivity and profitability. TQM, at its heart, is dedicated to bringing out the best qualities in ourselves, in others, and in the work we do together. It is, in many ways, a natural fit with the hopes and aspirations of educational leaders in their work to improve schools and communities" (Bonstingl, November 1992).

Cornerstones of TQM

The intellectual cornerstones of TQM can be described in many different ways. The Texas Association of School Administrators, in *A Resource Guide for Total Quality Management in Texas Schools* (1992), listed the following four areas of knowledge as the basis of Deming's philosophy:

- A knowledge and understanding of systems. This explains what comprises a system, how it behaves and how it interacts with its subsystems and systems outside itself.
- A knowledge and understanding of psychology. People respond to two types of motivation. External motivation includes conditions imposed on the individual. ("If you don't hand in your report, I'll flunk you.") In contrast, internal motivation arises from the need to belong and contribute to a group, and to be recognized as an essential member of that group.
- The theory of *knowledge*. This assumes that true knowledge of any system and process can only arise from asking questions of those closest to the work. Uncovering causes of problems involves repeatedly asking "why?" until the genuine causes are uncovered.
- An understanding and use of *statistics*. All decisions and proposed changes to the system must be based on accurate data, and not intuitive feelings. TQM practitioners learn how to collect valid data and use this information as a tool for continual improvement.

Systems

So what is a system? According to the American Association of School Administrators (1992), a *system* is "a network of functions or activities within an organization that work together for a shared aim. When creating quality schools, the most important change in perception is to recognize the school—or really the school district—precisely as a single, connected system and to manage it as one."

The reason for this emphasis on the interconnectedness of all the parts is that major quality improvements require a system in which all the subsystems work well together. G. Thomas Houlihan, superintendent of the Johnston County School District, North Carolina, put it this way:

> Quality cannot be achieved in certain segments of the system. Total quality means just that: quality in every segment of the system. Custodial practices, teaching techniques, administrative practices, and boardsmanship must be examined to focus on total quality. No individual or group can be exempted, as quality depends on continual improvement of everyone associated with the district. (Cited in AASA)

> In a well organized system all the components work together to support each other. In a system that is well led and well managed, everybody wins. This is what I taught Japanese top management and engineers beginning in 1950.
>
> If by bad management the components become competitive, the system is destroyed. Everybody loses. Costs go up, quality declines, the market declines. Unfortunately, this fate awaits the Western world because of the prevailing system of management, which does not understand a system.
>
> Source: W. E. Deming cited in Rafael Aguayo (1990)

Traditional approaches to management usually invite leaders to view systems as mechanistic assemblies of components. If these components are defective, they can be replaced, retooled, or simply abandoned. But TQM inspires a different view. It asks us to view the system as a living organism, much like our own bodies. In this view of a system, "all the parts work together and can compensate for weaknesses in each other. They can work to become permanently more effective than they are now, and can become a system capable of continued growth and vitality" (AASA).

There are (or should be) no unimportant members of the school system. Everyone must know the importance of their contribution to the function of the system as a whole. As Bonstingl (November 1992) says,

> [In quality-conscious systems] people feel better about themselves and their efforts on the job, and they take greater pride in their work. Relationships among people in the organization are more honest and open. Administrators often feel less isolated, misunderstood and burdened. Productivity goes up as work processes are improved continuously. With organizational change come opportunities for personal and professional growth, along with the pride and joy of getting better and better everyday, and helping others to do the same.

Psychology

The ability of any organization to achieve higher levels of quality depends on the willingness of workers to perform at a high level. They must choose to become engaged in the work and add the full measure of their talents and ability to the tasks at hand. In other words, they must be motivated.

As Taylor told us, motivation can be imposed from the outside (extrinsically) using suitable rewards and punishments. But is that enough? William Glasser (1992) doesn't think so. "While there is no doubt that this coercive way of managing will produce work, we have ample evidence that neither in school (or anywhere else) will it produce the quality work *we now need to be competitive*" (emphasis in original).

Quality requires workers engaged in their work activities. This means they commit to continual improvement. But too few systems foster a worker's internal motivation to contribute to the system's mission.

This is no different in most of American industry. As Glasser (1992) points out, "Managers in both [business and educational] systems suffer severely from the same ailment: *They manage as if the quality of the lives of those they manage is not important*" (emphasis in original). This, according to Glasser, is the "fatal flaw. While most [workers and students] will do what they are told, very few will expend the effort needed to do quality work unless they believe that what they are asked to do, as well as how they are asked to do it, will add quality to their lives." What is true for students also holds true for teachers, bus drivers, secretaries, custodians, and principals. Excellence cannot be imposed by even the strongest willed leaders. It can only arise when workers feel an inner need to achieve it. This inner need is also called *intrinsic motivation.*

> We look at many at-risk kids and we say that they are not motivated, They are as motivated as anyone else. We have not learned how to tap into some motivations, so we write some people off because they are different. They do what makes sense; we haven't figured out what makes sense to them. We are not *listening* (emphasis in original).
>
> Source: Enid Brown interviewed by Brandt (1992)

Intrinsic motivation results from people's instinctive need to belong to a system they can believe in. They feel a desire to contribute to the functioning of that system. As Deming (1986) explained:

> People are born with a need for relationships with other people, and with the need to be loved and esteemed by others. There is an innate need for esteem and self-respect.... Circumstances provide some people with dignity and self-esteem. Circumstances deny other people these advantages. Management that denies to their [workers or students] dignity and self-esteem will smother intrinsic motivation.

This thought was carried further by Enid Brown, a consultant on quality for industries and schools, who said: "To not be able to contribute because you're in the wrong environment is really one of the most devastating things that can happen to a person" (Brandt). Devastated people do not perform quality work.

Knowledge

TQM's philosophy of continuous improvement does not end with the system. All members within the system must continually expand their knowledge about system structure and how work flows between subsystems. They must also continually develop their knowledge of their jobs and how they might improve their work processes.

This personal growth leads to *profound knowledge*, a term defined by Brown:

> The theory of a system, along with theories of variation and of knowledge and psychology—taken together as interdependent components—form Deming's philosophy of profound knowledge. Profound knowledge results from posing essential questions. The questions inevitably force us to ask about our processes. What is the system doing? Is it stable? In other words, is the distribution of the output highly predictable? Are the outcomes related to common causes—those associated with the system? Or are the causes special? Attempting to improve the process without understanding the causes of variation won't get you very far and may actually be harmful. (Brandt)

As Brown says, one of the easiest ways of learning about the system is to ask questions. A good example of this approach was described by Richard B. Wilson and Mike Schmoker (1992), two educators who learned about TQM by working with the Toyota of America plant in Georgetown, Kentucky. They wrote:

> [Fujio Cho, the President of Toyota of America] is an intriguing example of leadership: His role is to learn by listening—not to employees' excuses for problems, but to their thoughtful remarks, which are laced with data and concrete references to problems and possibilities. He spends the first four hours of each day going from one work station to the next, asking about the problems employees currently are dealing with—but never criticizing individuals or groups. Employees remark on how little he speaks, how much he listens, how he does more asking than telling. But this doesn't make him any less effective in communicating the message that improvement is of the essence, and employees know he'll be back to check on progress.

Areas of knowledge required to operate effectively in a quality-seeking system include the understanding that increasing quality results in higher productivity and lower costs. There must also be an awareness of psychology and how to promote an environment where workers are intrinsically motivated to contribute. Finally, workers and managers must understand how to use statistics to assess the system operation.

Statistics

So far, most of our discussion about TQM has focused on the soft skills of leadership, personal development, and ways of relating to workers. It should be remembered, however, that TQM largely arose from the work of statisticians. Evaluation through the use of statistical tools underlies almost every decision-making and problem-solving initiative to improve quality.

Charles A. Melvin III, an administrator in the Beloit Turner School District in Wisconsin, points out that: Deming's "approach also emphasizes something that has been understood for quite some time but ignored by many educational researchers and practitioners; namely, that the test of anyone's ideas for improving the quality of educational services is whether they can be shown to be effective" (cited in J. O. Stampen 1987)

This grounding in numerical analysis makes TQM difficult to refute. Deming has not solely offered his suspicions that TQM can improve quality. Every change that arises from the practice of total quality must prove its ability to improve the system on a pilot or trial basis or it is not adopted. These analyses and measurements are often designed and implemented by the workers themselves since they are the ones who know the processes best.

In many Tayloresque organizations, numbers are used by upper management to motivate people extrinsically. Numerical quotas, goals, and evaluation systems help leaders manage by objective. The result, as we'll see, is a work force that focuses on numbers and not quality. In quality-seeking organizations numbers are not used to praise or punish individuals but to describe the operation of the system. This reflects the idea that the system, not the individual, determines the quality of the outputs.

Applying TQM means applying new ideas about systems, psychology, knowledge, and statistics. These new ideas embody new words and expanded meanings of old words that can be found throughout discussions of quality. The lexicon of TQM is the subject of the next chapter.

Chapter 2

The Language of Total Quality

In the practice of TQM, workers learn new terms to describe events and processes within their system. With the development of this language comes the ability to analyze and manage these events and activities to improve quality. Given the uniqueness of each working environment, TQM requires each system to decide for itself how to apply these definitions to meet their own needs. The language of TQM, in other words, is often user defined.

The result can be a seeming flexibility in the exact definition of terms. A number of writers have called TQM content-free because each system employing these principles develops its own content and exact meanings of terms. For example, some school districts perceive the students as customers of the system; others see them as workers. While this flexibility won't affect the learning process, it may cause some confusion among those beginning to learn to apply TQM principles.

In this section we'll describe some of the common meanings of terms encountered in TQM.

Benchmarking

Powerful insights on the operation of any system can be gained by studying the operation of other more successful systems. In TQM this is called *benchmarking*. It is the process of comparing aspects of your system with one recognized as having a higher level of quality. A school in a neighboring district with higher SAT scores, for example, could be analyzed to learn how they are achieving these results. It may then be possible to use similar techniques in another district.

Continuous Improvement

This term communicates the need to constantly and forever adjust the system so that it maintains a close alignment among its internal needs, work processes, and the mission of the system.

Two main processes are used to achieve continuous improvements.

1. *Problem solving process* is a disciplined approach to solving problems that prevent a group from meeting another group's requirements. Specific techniques are used to identify the root cause (or causes) of the problem and to develop possible solutions. These solutions are then implemented on a trial basis and results are measured. If the results indicate that the solution addresses the problem, it can be implemented on a wider basis.
2. *Quality improvement process* is to the problem solving process what fire prevention is to firefighting: a means of anticipating changes in needs and responding in a proactive manner. The system is analyzed to find ways of improving quality even in the absence of negative customer feedback.

Costs

As Deming told the Japanese, poor quality in any system directly and indirectly increases costs. Schools, too, pay a high price for lack of quality. The Prince William County Schools in Virginia recently published a list of costs incurred when the educational system does not meet the needs of students, staff, and society. They call these the "Costs of Non-Conformance," and they arise from internal failures, external failures, and the costs of exceeding requirements and missing opportunities.

Internal failures are the costs of correcting products and services that do not meet quality standards prior to delivery. Causes include:

- Bureaucratic procedures that delay delivery of needed resources
- Ineffective teaching that needs to be untaught and retaught
- Poor communication that results in poor comprehension of expectations and the need to correct misunderstandings
- Wasted effort on projects not completed
- Wrong decisions based on inadequate and erroneous data

External failures are costs caused by poor quality once the product/service has been delivered. Causes of these costs include:

- Remedial programs of any kind including retention in grade
- Other corrective action because skills, information, concepts, or values were inadequately/erroneously taught
- Time and effort to deal with irate parents

- Time and effort to deal with discipline problems
- Vandalism
- Retraining of graduates to improve employment potential

Costs of exceeding requirements includes costs of providing information/services that are unnecessary or unimportant. Causes include:

- Acquired resources for which there is no need
- Work procedures for which there are no useful outputs
- Work procedures too elaborate for the need (producing reports instead of memos)
- Holding meetings instead of a conference call
- Establishing regulations for which there is no need

Costs of lost opportunity include profits/benefits not earned because customer requirements were not met. Examples include real and social costs of:

- Teacher/student burnout
- Teenage pregnancy, social problems, drug abuse
- Lack of community support for school system
- Lost resources due to inadequate planning
- Diminished capability of the labor force, social costs
- Resources diverted to remediation, corrective actions
- Losses due to foreign competition
- Decreased standard of living (Texas Association of School Administrators 1992)

Customers

The term *customers*, as used within TQM, is broadly defined. A customer can be any person or group that receives products or services from another person or group. It has nothing to do with money. The products and services are called outputs. Identifying your customers simply involves asking who uses your work to do their work.

TQM recognizes two types of customers, those within the system (internal customers) and those outside the system (external customers).

External customers are people and institutions outside the school that receive, use, or are affected by the outputs of the school system. These groups include students, parents, community at large, colleges, vocational schools, businesses, governments, and industries.

Internal customers are people and groups within the school system who receive the outputs (products/services) from people or groups within the

system. These outputs are then used by the internal customers to do their own work. In any system, the flows of the outputs move in many directions. Teachers, for example, supply an output (qualified students) to the next higher grade. Teachers also provide information to the administration.

Why does TQM view processes within systems in terms of customer and supplier relationships? Because a focus on the customer/supplier relationship forces the system to acknowledge and respond to customer judgments. These judgments then define the desired state of all products and services. The desired state is compared with the actual state, and areas for improvement are identified. Before any action is taken, however, the suggested improvements must be shown to be effective and must align with the system's mission and goals.

Focusing on meeting customer needs also reinforces the interdependency of all personnel who affect the educational processes, including food service workers, bus drivers, office staff, nurses, and maintenance workers. Each worker gains heightened awareness about how his or her actions make an impact on the operation of the entire system.

> Only the customer can be the ultimate judge of quality.
>
> Source: Susan Leddick (cited in AASA)

A term related to customer is *stakeholder*. A stakeholder refers to anyone with a vested interest in system operations. Some people or groups hold a larger stake in a system than others.

Output

Every work activity or process has an end result, often called an output. An output can be any internal/external product or service supplied to a customer.

Paradigm

A paradigm is a set of beliefs that determine how we view the world. It can be thought of as the mental model of the world carried inside our heads. We use this model to interpret and explain events we perceive in the outside world. For example, centuries ago the prevailing paradigm held that the world was flat. A paradigm shift occurred when people began to view the world as a sphere. Their mental models of the world changed to conform to the newly discovered reality of a spherical planet.

When we view events, we always filter them through our existing paradigms. If we believe that a certain percentage of people can't learn, we will perceive a percentage of nonlearners in the world around us. No attempt will be made to teach these people.

When we change our paradigms, we change our mental model of the world. This, in turn, changes the ways we perceive and interpret events.

Quality

The first thing to say about quality is that you won't find an ironclad definition in this Bulletin. Many great visionaries have unsuccessfully wrestled with the meaning of the word. Fortunately, as Glasser (1992) points out, "Because [quality] feels so good, I believe all of us carry in our heads a clear idea of what quality is for ourselves."

Most organizations pursuing quality develop their own definition, but most end up reflecting the fact that the final judges of quality are those who use a product or service as either internal or external customers.

We do this as a consumer every day. We understand that any manufacturer's claims of "quality" in a product are worthless until we, as users of that product, discover the truth of these claims. We do this by comparing the actual performance of the product or service to our expectations. If it meets our needs, we perceive quality in that item. If our needs change, the exact same item may not possess any quality at all. For example, consider a gold wristwatch. If it's needed for a dinner party, it will meet our needs (and have quality). If, however, we are spending a weekend painting the spare bedroom, the last thing we want is a chunk of gold around our wrists. The watch hasn't changed but our needs have.

Quality changes organizations "from an environment of distrust and fear of reprisal to one of openness and trust where creativity can flourish; from working as individuals to working as teams; from protection of organizational turf to the breakdown of departmental barriers; from an autocratic management style of direction and control to a softer style of team leader and coach; from power concentrated at the top to power shared among employees; from a focus on results to a focus on continuous improvement of the processes that deliver the results; and finally, a change from making decisions based upon gut-feelings to an analytic, fact-based approach to management."

Source: Pauline N. Brody, chairperson of the Xerox Quality Forum, quoted in AASA

Quality, therefore, is the ability of any product or service to meet the needs of the user of that product or service. This is where the dynamic nature of TQM becomes evident. Since people's needs are constantly changing, the characteristics of the product or service they use must also change. Quality-conscious organizations understand this, so they use TQM to continuously adjust the system to deliver products and services that meet (or exceed) all their

customers' specifications. To understand quality you must communicate effectively with your customers.

Quality Circles

One of the tenets of TQM holds that the each person is the world's greatest expert in day-to-day processes found in work areas and ranges of authority. Quality circles provide a systematic means of tapping this expertise. Composed of six to twelve workers, quality circles meet on a regular basis to discuss ways of improving the system. These aren't shoot-the-breeze sessions. Trained in problem-solving, quality-improvement, teamwork, and statistical measurements, circle members analyze the functioning of the system and uncover areas for improvement. These circles also create a positive work environment by facilitating rank-and-file involvement with the quality-improvement process.

Like the words used in any discipline, the vocabulary of total quality can begin to sound like jargon, particularly when used by experts in the field. But unlike other disciplines, the language reflects its roots in the four principles described in the previous chapter (systems, psychology, knowledge, and statistics). These principles are important to keep in mind as you begin to think about how TQM might be applied in your school or district.

Chapter 3

Translating TQM from Business to Education

Many educators resist TQM because of its roots in industry and business. The reliance on statistical analysis, focus on costs and systems, and endless talk about satisfying the customer seems out of place in education. In addition, schools do not have the latitude commercial businesses enjoy. As Judson Hixson and Kay Lovelace (1992) point out:

> State-level requirements for minutes (and sometimes methods) of instruction, school calendars, curriculum and graduation requirements, program segregation, and, perhaps most importantly, control over the amount and use of fiscal resources all severely limit the degree of discretion local schools can exercise in comparison with private companies. Schools cannot segment their market, redefine their product mix, or sell off unprofitable or problematic units.

A resistance to the tenets of TQM because of the commercial overtones overlooks the fact that TQM is not a "program, recipe or project to be implemented. Instead, [TQM embodies] a set of broad principles about the basic culture and norms of practice that should exist in a quality-focused organization" (Hixson and Lovelace). In other words, TQM says nothing about manufacturing and everything about management and cooperation within systems. This focus on how to manage systems for quality (and not on what specific changes to make) is why TQM is often called content-free. As Glasser (1992) states:

> School problems may be different but they are not special. The failure of our industrial managers to persuade more workers to design and build quality products is no different from the failures of teachers (the managers of students) to persuade more students to do quality schoolwork.

Nevertheless, educators studying TQM will need to translate some of the concepts before applying them in the school setting.

> There are those who offer criticism of TQM as being overly mechanistic in its approach to service organizations. This is because they have not understood the power of the ideas associated with this framework. There are those who have gone overboard with TQM as "the" answer to all our concerns: this is because they have not seen how difficult it is to sustain TQM over time.
>
> Source: Stephen Murgatroyd (1992)

Total Quality Education

If Toyota's goal is quality cars, the school's goal must be quality education. But education is like quality; few can define it. Often anything that happens to children is viewed as education, especially when the experience is facilitated by an "educator." This leaves us with a definition so broad it's meaningless.

Glasser (1992) suggests that presently education has a definition similar to intoxication. He points out that society has developed standards that define the blood-alcohol level of people who are legally intoxicated. The exact level depends on which of the fifty states you happen to be in. Society, too, seems to have developed state-by-state standards defining people who have been educated. Everyone who drinks does not become legally intoxicated; everyone who attends school does not become educated.

If we wanted to define education, we would have to acknowledge that it, unlike intoxication, should be regarded as a never-ending process. If everyone who graduated from high school came out pursuing life-long learning, we would have to acknowledge the overwhelming success of the educational process. Glasser (1992) offers the following definition: "Education is the process through which we discover that learning adds quality to our lives."

Bonstingl (March 1992) says,

> Education in the new paradigm will not be a delivery system for collections of fragmented information in the guise of curriculums. Rather, education will be a process that encourages continual progress through the improvement of one's abilities, the expansion of one's interest, and the growth of one's character. Such an education would be good for the individual, good for the economy and good for the commonweal we call society.

Deming's Fourteen Points

TQM is often described as consisting of Fourteen Points that build upon the basic principles of TQM discussed earlier. These Fourteen Points,

stated and illustrated in the sections that follow, provide administrators with guidelines or signposts that can help them learn, teach, and implement the basic concepts behind TQM.

Point 1: Create Constancy of Purpose

So far, we have described a number of profound changes that can occur in quality-focused organizations. But changes enacted without a clear vision of the system's mission produce anarchy, a serious barrier to quality.

Applying TQM begins with a vision, a description of the primary purpose of the system. This vision is developed with the input of system members and other stakeholders. All decisions and actions are then analyzed to ensure that they advance the system's underlying mission.

About four years ago, Petersburg Public Schools in Petersburg, Virginia, was a "highly centralized, bureaucratic organization that provided few opportunities for principals, teachers and parents to be active participants in decisions about what and how the children should be taught" (W. B. McLeod, B. A. Spencer, and L. T. Hairston 1992). After several years of applying Deming's principles, "our test scores have improved significantly, and our drop out rate has been reduced by over 50 percent."

Constancy of Purpose

Our actions, at Mt. Edgecumbe High School, are based on the following beliefs:

1. Human relations are the foundation for all quality improvement.
2. All components in our organization can be improved.
3. Removing the causes of problems in the system inevitably leads to improvement.
4. The person doing the job is most knowledgeable about that job.
5. People want to be involved and do their jobs well.
6. Every person wants to feel like a valued contributor.
7. More can be accomplished by working together to improve the system than by working individually around the system.
8. A structured problem solving process using statistical graphic problem-solving techniques lets you know where you are, where the variations lie, the relative importance of problems to be solved and whether the changes have made the desired impact.
9. Adversarial relationships are counterproductive and out moded.
10. Every organization has undiscovered gems waiting to be developed.
11. Removing the barriers to pride of workmanship and joy of learning unlocks the true untapped potential of the organization.
12. Ongoing training, learning and experimentation is a priority for continuous improvement.

Source: Mt. Edgecumbe High School

Petersburg Public Schools describes their constancy of purpose:

> All resources must be aimed at student development. All programs that consume resources must be examined. Those that do not contribute to student development must be eliminated. All stakeholders (students, parents, support staff, teachers, administrators, school board members, and the community at large) understand the desired out-

comes and believe that these goals can be reached. Everyone is willing to measure progress and to change to short-term strategies to accomplish long range objectives. (McLeod, Spencer, and Hairston)

Charles Melvin, district administrator of Beloit Turner schools in Beloit, Wisconsin, described his district's development of a mission reflecting an outcome-based education philosophy. Their constant purpose is one where "all students would experience success in achieving exit outcomes, given time, opportunity, and support to become responsible, knowledgeable, and contributing members of a global society" (1991).

This constancy of purpose ensures that all decisions and actions taken by workers reflect the core mission of the system.

Point 2: Adopt the New Philosophy

TQM differs from other school improvement initiatives because it is not a program but a new way of thinking about human relations in the workplace. When implemented, this new focus on cooperation and teamwork makes an impact on every aspect of relations between leaders, teachers, and students.

For the Petersburg schools, "this philosophy is transformation to a new way of thinking and planning for student learning. We refuse to accept the idea that students cannot learn at high levels under the right conditions of teaching and learning" (McLeod, Spencer, and Hairston).

Beloit schools worked to ensure that staff, administrators, and the board of education shared this new philosophy by holding a series of workshops and training sessions focusing on shifting beliefs and attitudes. Melvin reported that "perhaps the most difficult paradigm to let go of was the 'normal curve' expectation of learning." This "normal curve" was replaced by an "outcome-based decision-making model where all students would learn."

Leaders seeking to implement TQM must be aware that fully adopting this new philosophy will result in an examination and assessment of almost every process within the organization.

Point 3: Eliminate Dependence on Mass Inspection to Achieve Quality

One of the greatest disparities between TQM and traditional education is in the area of assessing the quality of education. Traditionally, schools rely on standardized tests administered at the end of each grading period. The purpose of the tests is to ensure that all students completing the class have acquired the requisite knowledge and skills.

Deming equates this practice to the way phones used to be made before Shewhart. Out of, say, a thousand phones built, all would be inspected

and those that passed would be defined as quality phones. The problem with this approach is that it costs money to produce defective phones. It costs to inspect all phones produced and repair those that do not pass the inspection or fail once they are in service. A fundamental tenet of quality states that it is always cheaper to do things right the first time.

If educators are to improve the quality of education, they must ensure that the learning system (the determinant of 80 percent of all results) constantly assesses student progress, even on a day-by-day basis. The results of these assessments must be available to the teachers and students so that midcourse corrections can be made. This approach suggests movement away from punishment or rewards based on grades, a subject discussed in greater detail in the next chapter.

Point 4: End the Practice of Awarding Business on the Basis of Price

All of us routinely choose to pay more for certain brands of items because they meet our requirements better than their imitators. We pay a higher price because we know we'll pay less over the long run. This is clearly the case when a system buys the services of a teacher or administrator. No one gets hired because he says he'll do the job for $50 less per week than any other candidate.

What's true for individuals is also true for systems. The choice of resources—technologies, facilities, staff, and equipment—must be based on their ability to meet the needs of users. The users, remember, are the sole judges of quality. Any product or service that fails to meet their needs is no bargain, no matter how low the price.

The practice of TQM requires cooperation among workers within the system. This same cooperation extends to relationships with system suppliers. Quality-focused systems, therefore, usually find themselves developing long-term relationships with suppliers. The system communicates its genuine needs and the supplier tailors the output to fill those needs. The added costs of these customized products are much lower than the overall costs of using outputs that don't do the job.

In educational systems, the implications of working with suppliers go beyond making wise purchasing decisions. In a high school, a key supplier is the middle school, the subsystem providing students to the high school. Mt. Edgecumbe High School, for example, seeks to "minimize the total costs of education by improving the relationship with other institutions and helping them improve, thereby improving the quality of students coming into [our] system" (David Paul Langford 1990).

Point 5: Constantly Improve the System of Production and Service

Quality improvements never end because total quality, like perfection, can never be achieved. Employers, governments, students, and society constantly evolve, as do their needs. The school system must continually redesign itself to understand and meet these ever-changing needs.

The Petersburg schools "believe that improvement is not a one-time effort. There is a potential for improvement in each step taken to create or upgrade school programs and services. Making a commitment to constantly improve the system necessitates a long-term perspective. We continually identify barriers and seek workable solutions to improve processes" (McLeod, Spencer, and Hairston).

The TQM culture is one of constant critical review. The purpose isn't to find fault with individuals but to identify ways of improving the system, some of which may involve nothing more than minor tinkering. In Japan, these minor changes are called *kaizens*, incremental changes that fine-tune existing processes. Essential to this process is the feedback on system operation that informs workers of the success or failure of these *kaizens*.

Point 6: Institute Training on the Job

While TQM may "resonate with something that many people already personally believe is 'right'" (Rhodes), its implementation requires training. This training provides workers with skills needed to analyze problems and test possible solutions. Workers need a detailed understanding of how their system operates to understand how their actions affect all the subsystems and relationships with outside suppliers and customers.

The purpose of TQM is to make each employee a quality-control expert. Developing this expertise requires an understanding of how the system design affects the quality of the results, the criteria on which judgments about quality are made, the statistical tools needed to assess how well the system is functioning, and the identification of areas for improvement. Other training needs may include leadership, problem-solving, self-evaluation, team building, and assertiveness. These training programs must be open-ended (that is, training will continue throughout a worker's career). This subject is also addressed in point 13: Institute a vigorous program of education and self-improvement.

Point 7: Institute Leadership

Leaders are typically thought of as people who tell subordinates what to do, when to do it, and what will happen if they don't. When the workers are intrinsically motivated, however, the leader's role changes to that of a

facilitator who ensures that workers have the skills and knowledge they need. In the Mt. Edgecumbe Schools, "The aim of supervision should be to help people use machines, gadgets and materials to do a better job" (Langford). The emphasis of the leader's initiatives focuses on improving the overall system, not changing individual behaviors. Leadership also ensures the constancy of purpose needed throughout the system.

The leader keeps the system members focused on quality and communicates this focus to all stakeholders. Leaders can do this by serving as an example of commitment to life-long learning.

Point 8: Eliminate Fear

We've all worked in organizations that reward or punish their workers. Fear shapes the behavior of workers when they are intimidated by potential loss of jobs and prestige, by appearing foolish, or by taking risks. As Aguayo writes: "Someone who is fearful takes whatever action necessary to remove the source of that fear. That may mean harming the long-term prospects of the company."

Changing any system requires employees to take risks, but no one will assume risks if they fear the consequences. Would anyone propose a means of eliminating their job by changing the system? Not with kids in school and a mortgage. On the other hand, a written policy assuring workers of retraining and transfer within the system will ensure their willingness to explore all changes that enhance quality, even those that change their role. As Yvonne Siu-Runyon and Sally Joy Heart (1992) point out, "Learning and risk-taking cannot take place in an atmosphere where people are afraid to ask questions, take a stand, or make suggestions." Fear inhibits intrinsic motivation. Removing fear from the workplace is the responsibility of leadership.

Point 9: Break Down Barriers between Departments

Quality problems in many systems arise when the outputs of one subsystem do not meet the requirements of another. An example would be a middle school that cannot supply qualified students to a high school. TQM stresses cooperation between suppliers and customers, and this cooperation can only arise with effective communication. It is this communication that legitimizes customer judgments about the quality of the product or service. When departments can gain access to these judgments, they can redesign themselves to satisfy these needs.

Siu-Runyon and Heart indicate that "some school executives put this concept to work by having what they call 'alignment meetings,' where the entire school staff—instructional, counseling, custodial, food services,

secretarial, transportation, and so on—meets to celebrate victories and work toward solving problems."

In other systems, quality circles and problem-solving teams are composed of members from different departments. This helps ensure alignment between suggested improvements and the genuine needs of all customers.

Point 10: Abandon Slogans

While slogans may be effective in selling soft drinks, they cannot change the design of systems. Exhorting workers to do a better job without redesigning the system to produce higher quality outputs is an exercise in cynicism and an abrogation of leadership. For example, Ford's experiences with improving quality would have failed if their only strategy was telling the world that "Quality is job 1" and leaving it at that. Instead, Ford backed up its slogan by vastly restructuring the workplace, resulting in a system that produced higher quality products.

In a quality-seeking school district, those responsible for solving problems should seek out the root causes. They might then adjust the system to account for changing needs rather than exhorting workers to accomplish an output that the system design prevents.

Point 11: Eliminate Numerical Goals, Quotas, and Work Standards

In his book *Dr. Deming: The American Who Taught the Japanese About Quality*, Rafael Aguayo tells the story of a bank that wished to eliminate teller errors. Tellers routinely experienced minor discrepancies between the amount of cash in their drawers at the end of the day and the amount their records indicated they should have. The bank instituted a policy whereby any tellers who experienced more than one accounting discrepancy each month would be placed on probation. The policy seemed to work because the reported discrepancies fell within the stated quota.

But unknown to the managers, the tellers hadn't eliminated their errors; they changed the subsystem to eliminate the need to report errors. If they had extra money left over at the end of the day, they placed it in a common fund. Any teller who came up short would take money from the fund and place it in their cash drawer.

The moral of this story is that setting goals and quotas creates a system that focuses on achieving them rather than satisfying customer needs (achieving quality). This point is addressed by Siu-Runyon and Heart:

> Making state-by-state comparisons of standardized test results is a good example of how not to use numerical quotas. If teachers end up teaching to the test to raise scores, we have no idea of what students actually learned.

Merit or incentive pay is another example of using numerical goals and quotas. It encourages people to focus on numbers, not quality. It also forces workers to focus on short-term goals, which may impede the more important long-term commitment to quality. Merit pay also sends the message that some workers are more important than others. Quality-focused systems cannot afford any unimportant workers; everyone's best efforts are essential.

Obstacles Preventing Pride in Work

1. Lack of direction
2. Goals without the tools to achieve them: time, resources
3. Arbitrary decisions by boss
4. Lack of clear goals and objectives
5. Unclear how contribution is valued
6. Lack of expectation setting up criteria
7. Insufficient information available
8. Different organization goals within the company
9. Too much group management
10. Deadline anxiety
11. Lack of product definition re: purpose and product arbitrarily changed by consumer/customer within company
12. Organization (staff) not valued by line organization
13. Hierarchy tries to run technology it doesn't understand
14. Lack of communication (conflicting and unclear objectives, lack of advance information, inadequate information flow and feedback, lack of authority to do what needs to be done)
15. Lack of resources: time, proper tools and equipment.
16. Short-term objectives conflict with long-term
17. Nonuniform application of policy
18. Poor training
19. Specifications constrain creativity and procurement and manufacturing
20. Fear—pressure for short-term results; total organizational fear
21. Company and union adversarial relationship
22. Red tape
23. Unrealistic goals and objectives

Source: Aguayo (1990)

Point 12: Remove Barriers to Pride of Workmanship

Achieving quality requires the full contribution of every member of the system. They must experience the satisfaction of achieving high levels of performance.

However, the system often stifles this pride of workmanship. The accompanying sidebar lists barriers to pride in workmanship identified in a Deming seminar. A simple, but valuable, exercise is to ask members of any group to develop a similar list.

Point 13: Institute a Vigorous Program of Education and Self-Improvement

This point is closely aligned with point 6. Along with instituting training programs, the leader must serve as an example of someone committed to lifelong learning and continuous improvement.

As we said before, training is needed to develop the skills that can make each worker a quality-control expert. As Peter R. Scholtes (1988) points out in *The Team Handbook*,

> It is our strong conviction that for a project team to succeed in its task it needs much more than technical knowledge of the work under investigation. Expertise in the subject at hand is indispensable. But participants in a successful project must also know how to work as a team, plan and conduct good meetings, manage logistics and details, gather useful data, analyze the data, communicate the results and implement change.

Point 14: Structure Management to Accomplish the Transformation

Individuals working alone cannot achieve meaningful improvements in quality. Application of Deming's principles requires management to invent a new role for itself. Leaders must begin by developing a shared vision of quality and enabling system members to achieve this vision.

Structuring management to accomplish change ensures that present gains will not be jeopardized by staff turnover. The process, in other words, becomes greater than the wills of those who are engaged in it.

The Fourteen Points provide important indications of how well a system aligns with total quality principles. Managing the change TQM embodies requires designing a process of implementation so that members of the system understand their new roles and can succeed in the new work environment. The process of implementing TQM is the subject of the next chapter.

Chapter 4

Implementing TQM

> The continuous improvement process does not cost anything. It is basically a change of attitude. (Larrae Rocheleau cited in AASA)

> TQM generally didn't work in organizations that failed to radically change to achieve the vision. Organizations where it worked were transformed from top to bottom (Texas Association of School Administrators 1992)

Implementing TQM is not something you do, it's something you and your organization become. Accepting the challenge of total quality alters the system and the relationships of those within the system. These changes arise from workers who constantly ask "Why?" and improve their work processes based on the answers.

One of the results, according to Fran Bowling, payroll specialist with the Corvallis schools, "is a real upbeat feeling. You understand another person's desk, and it's very contagious." Fran was introduced to TQM concepts by her supervisor, Kathy Rodeman, the fiscal services manager. After surveying the needs of the staff and streamlining the reporting processes, Corvallis schools eliminated 500 hours of overtime and 36 days of contract help the first year. But the changes involved "big risks," according to Rodeman, "and a whole change in the concept of what people's jobs were." In a traditionally managed organization, these changes may have led to severe problems, but Rodeman described 1992 as a "stress-free year."

Total Quality Leadership

While it is true that dramatic quality improvements require changes in the entire system, it is possible, maybe even desirable, to begin implementing TQM in subsystems and allow it to spread to other groups. Given its focus on

costs and customers, perhaps the easiest application of TQM would be in the fiscal management of the school district. But some of its techniques can be implemented in single classrooms.

> American corporations woke up to the need for quality about 25 years ago. The first 15 years were failures. There is no reason why education should go back and replicate those corporate failures.
>
> (Source: Pat Dolan cited AASA)

John Beaston, a first-year teacher at Aloha High School in Beaverton, Oregon, experienced TQM while working for Intel, the computer chip manufacturer. He helped set up a new venture within Intel that "succeeded beyond their wildest dreams. We built a profitable business with such a positive culture that [employee] turnover was almost non-existent." He perceives the value of TQM, but the school district as a whole doesn't, at least not yet. "What I've been trying to do is get some of the people from industry who know about TQM to come into my classroom and look at it from a systems point of view."

Leaders, whether of subsystems or the entire system, must be prepared for change. A simple declaration of intent or support is not enough. As Enid Brown points out,

> First of all the leaders must understand what transformation means. They must have a solid theory and vision, and one does not get to that point by doing it superficially. It is an internal process; one must work from the inside first. It calls for soul-searching. Many of the strategic planning models include in their process a provision to go away for a couple of days, sit down and work through a mission and set of principles. The idea is, you've got to look at your core beliefs and tap into those because they are so basic to leadership. (Brandt)

Leaders must be willing to redefine their relationship to their subordinates, and this may include foregoing some of the trappings of success such as reserved parking spaces and office suites. The object is breaking down barriers between leaders and workers. TQM does this by minimizing status, power, and control. The focus, instead, is on outcomes and achieving the system's vision. The chain of command becomes less important than the chain of service or production.

Policy Considerations

School administrators do not have the same latitude as company presidents in bringing about changes that can lead to total quality. Parents, the community at large, and legislatures all attempt, in varying degrees, to exercise control over the public education system. The ability of a leader to make the changes needed, even small changes, can be undercut by outside

stakeholders. One area of particular concern for administrators involves the local school board.

Making radical changes in system policies without school board support and understanding can lead to quick failure. As the entity primarily accountable to the community for the operation of the schools, the school board may not approve of an administrator who allows the rank and file to make important policy decisions. According to J.D. Hoye, associate superintendent for professional/technical education at the Oregon Department of Education, the problem is often one of communication. "People don't clarify these decision-making issues, so everything goes to the school board. In fact, TQM can set about a process so you know who's responsible for these decisions."

> Management expects TQM to be instant gratification and that is one of the key reasons for its failure.
>
> Source: Joe Lutzel
> cited in Matthews and Katel 1992

TQM typically recognizes three levels of decision-making. The first level involves decisions that are solely in the hands of the individual. Second-level decisions need to be made with input from other system members. The third level includes major decisions made by the system's top leadership; in the educational setting school boards must be included (Hoye).

Each group's role in the decision-making process must be defined and understood. Just as the system's leader must champion quality among the workers in the district, he or she must take this same message to the school board and all other stakeholders. Effective communication between the administrator and the school board is the best means of preventing policy disputes and turf wars.

How then does a leader begin the awesome and unending task of changing the system's culture? The first step may be recognizing barriers to quality.

Barriers to Quality

About three years ago Newtown Public Schools in Conneticut began implementing TQM. Kenneth R. Freeston, assistant superintendent, identified ten attitudinal barriers that they encountered:

1. *The word quality* is seen by many as a platitude, unobtainable, and overused by advertisers.
2. *The corporate world as the model.* In the education community, there seems to be skepticism about following corporate examples. In particular, educators reject the focus on "customer orientation."
3. *Leadership.* System members may lack confidence in the leader's

commitment. There may also be few examples of quality-oriented leaders on which behavior can be modeled.

4. *Just another change*. Quality initiatives are often seen as just another trend that will pass.
5. *One year at a time*. TQM requires an open-ended (long-term) commitment. This focus runs counter to the traditional one-year planning cycle used in many schools.
6. *I know that already*. Faculty and staff often feel that they understand TQM, and it offers nothing that really new.
7. *Students don't value school*. Many teachers and staff believe the real reason for poor quality education is that students don't work hard enough. If the students worked harder, there'd be no need to improve schools.
8. *It's not my fault*. Profound changes in the social context of families (divorce, drug abuse, child abuse, teen pregnancy) present insurmountable barriers to successful schools.
9. *A question of culture*. Japan's ability to achieve quality is often felt to be the result of their culture and social mores. TQM, therefore, is not feasible outside Japan.
10. *Teacher as self-employed entrepreneur*. Teachers often perceive themselves as independent and isolated professionals who do not collaborate enough to use a quality approach.

Another group that has gained broad experience in perceiving how people react to TQM is the Continuous Improvement Process Media class at Mt. Edgecumbe High School in Sitka, Alaska. Students in the class are responsible for presenting TQM concepts to both internal and external customers. Over time, they identified the following stages through which people normally progress when asked to move from the old management system to TQM:

1. Oh no, another thing to do
2. This is interesting but a waste of time (or some other negative reaction)
3. Works for you but could not work for us; usually followed by listing reasons why it cannot be done at their site
4. Denial that it could actually be working
5. Questioning—about initial reaction in #1
6. Angry, mad, frustrated, defensive
7. Seek more information and look for transference of theories and applications or completely reject
8. Like the idea but no action; advanced lip service
9. Attempt involvement
10. Enthusiasm and relief

11. Progress not as fast as they like
12. Understanding and then profound knowledge
13. Continuous improvement

Overcoming these barriers and beginning to develop a quality culture requires the leader to start somewhere. Is there a natural beginning point for this process?

There is, and you've already crossed it. The American Association of School Administrators suggests that you "build a quality system slowly; start by developing knowledge and interest in quality concepts and attitudes." This suggests that continuous improvement begins with seeking out more information on the practice of TQM. Fortunately, there are many resources available.

An easy way to begin may be to obtain copies of some of the materials listed in the bibliography of this Bulletin. Of particular interest is Deming's book *Out of the Crisis*, and Glasser's book *The Quality School*. The AASA recently published *Creating Quality Schools*, a handbook summarizing TQM and its application. The Texas Association of School Administrators developed a *Resource Guide for Total Quality Management in Texas Schools*. These booklets list a variety of TQM resources and contacts.

With a better sense of TQM, you can begin to develop a rough idea of how these ideas can be applied in your district. The key point to keep in mind is that your experience with total quality will be a unique reflection of the people and conditions shaping your district. TQM is always site-specific. As Freeston points out, "As we started our work, we became convinced that we could not simply adopt someone else's model of quality; we needed to develop our own."

While it is impossible to describe a step-by-step process for achieving quality, there are important thresholds that quality-seeking organizations must cross. One of the most important is defining the mission or purpose of the system.

Developing the Core Mission

Can you have a system that does not possess a reason for existence? Can you build total quality when workers don't know what they are working to achieve? Not according to Deming, who wrote: "Without aim or purpose, there is no system." And without a system, total quality concepts have nothing to work on.

As stated by the Texas Association of School Administrators, "without a vision, the most we can hope for is to achieve irrelevant goals of the past,

compliance with regulations, maintenance of the status quo, and just staying afloat in a real world that demands much more."

> We expect our teachers to handle teenage pregnancy, substance abuse, and the failings of the family... then we expect them to educate our children.
>
> Source: John Sculley (1990)

> Schools cannot be all things to all people: they have to choose their focus based on an analysis of real stakeholder needs and their own strengths and weaknesses.
>
> Source: Murgatroyd (1992)

A stated mission provides a means of assessing the effectiveness of system changes. Changes that can be proven to advance the school district's mission are worth pursuing; those that don't, aren't. The mission, therefore, provides a baseline to assess progress and identify areas for improvement.

Murgatroyd points to another value of a clear mission: "When organizations have focused strategies and clear vision, then people who enter these organizations can become committed to them. When organizations have 'fuzzy' vision and varied and changing roles and strategies. . .then commitment varies with circumstance and time." He goes on to point out that "in several recent surveys of teacher stress conducted at the request of unions, it is becoming clear that teachers are increasingly confused as to their role and expectations that others have of them."

Eliminating this fuzziness requires a core mission that everyone understands. The AASA believes that, to be valid, shared aims should have the following three characteristics:

1. Be easily understood. Everyone needs to know the shared aim (be able to state it) and understand how their work helps achieve it.
2. Be pertinent to individuals. Individuals need to know how their work contributes to achievement of the aim. If the aim is not pertinent to them they will not care if it is achieved. Every stakeholder must understand how the aim pertains to them directly.
3. Serve a greater purpose by benefitting everyone in the larger community.

> The separate acts of teachers, administrators and board members alike are driven by their personal views of what's best for children. Unfortunately, the potential power of this common focus has become instead a fundamental weakness because decisions are made in isolation, with no way to take advantage of relationships to others who share the same goal.
>
> Source: Rhodes (1992)

Developing the system's aim or vision requires careful analysis of the needs of the community and the characteristics of the system. The aim of your system should be developed by those who know it best: the managers, workers, and students who must live this vision. Additional input

can be obtained from external customers who depend on that system's outputs.

Developing a mission will not be a simple process because the practice of TQM forces groups to keep asking "Why?" until root causes and effects are uncovered. Systems attempting to define their missions must address such fundamental issues as why we exist, what our purpose is on earth, and what do we want to be. Answers to these questions come not from consultants but from the hopes and dreams of those who live these ideals.

Goal Setting

With a stated mission, system members can begin to identify goals. One technique commonly employed is to set outrageously high goals. For example, a traditionally managed school might seek to improve attendance rates from 80 to 90 percent. A TQM organization might set a goal calling for no truancy in two years.

These outrageously high goals are called *hoshin* goals and serve an important function in achieving higher quality. Setting *hoshin* goals can shake people out of their comfort zone and promote greater innovation and risk-taking (Murgatroyd 1992).

It should be remembered, however, that any goal is a moving target. Achieving it may create other consequences that make the original goal unattainable or undesirable. A goal to graduate every senior may prove unworkable when, in the attempt to achieve it, seniors graduate without needed skills.

Examples of School System Aims and Purposes

- Create lifetime learners by developing students who enjoy learning.
- Graduate productive members of society.
- Produce employable people.
- Foster people committed to cooperation with others.
- Develop continually improving learners.
- Provide ever-increasing benefits to the community.

Source: AASA

In addition, the system, society, and system members change over time. This can affect the benefit of achieving a goal. Every change in the work process will affect resources and morale in other areas of the system. While TQM provides the tools to measure these effects, goals may need to be abandoned or changed if they hurt the system's ability to pursue its vision.

While TQM may be thought of as a means of achieving goals, the real benefits often go beyond achieving specific outcomes. Murgatroyd, for example, writes that "TQM is usually seen as a means of improving measurable goals such as attendance, academic achievement, social behavior, and

self-esteem." He says achieving these objectives using TQM requires:

- A strong sense of vision about the school and its core mission
- Promoting the continuous improvement philosophy and continuous learning of everyone in the organization
- Bringing the school as close to its customers as possible using stakeholder analysis and quality function deployment methodologies
- Challenging the members with outrageous goals that promote innovation and risk-taking (*Hoshin* goals)
- Teaching people to work effectively in teams [that are] both vertically and horizontally integrated
- Improving the quality of daily management and leadership in the schools (Murgatroyd)

Do these things and not only will the system achieve its measurable goals (for example, increased attendance), but it will also achieve something much more important: optimization of the system. *Optimization* is defined as: "All processes in an organization working together to achieve its stated aim" (AASA). It is this optimization that results in quality improvement, not blind adherence to achieving a numerical goal. Enid Brown explains: "If you focus only on the goal rather than optimizing the system, it's not going to work" (Brandt).

Implementation of TQM can be thought of as occurring in two phases. First is a decision phase where the system's (or subsystem's) leader decides to pursue quality. This is followed by a training phase where workers receive the skills and knowledge they need to implement TQM and optimize the system.

Training

To function effectively in a quality-conscious system, every employee must be able to act as a quality-control expert. Doing this requires workers who understand:

- The mission of their system
- Their work unit goals
- All the flows and work processes within the system
- How the quality of their work affects their internal customers
- How to work effectively as a member of a team (quality circles)
- How to intrinsically motivate employees in their work units thereby improving the quality of work performed
- The use of statistical tools to identify areas of improvement and assess the effectiveness of proposed changes

In some instances, this training may require the use of outside consultants. Problem-solving techniques, statistical analysis, and team building, for example, may best be taught using outside resources. But much of it can be done internally. For example, workers might be asked to chart all the flows (inputs, processes, and results) within their subsystem. These charts can be combined and summarized to show the interdependence of the entire school district. Employees might also be asked to generate lists of all their customers and their customers' judgments about quality, then compare these judgments with the current quality of their outputs to identify areas for improvement.

In Education, Redesign the System First, the Processes Second

In the traditional way [of applying TQM], you look at processes that are already in place and determine if they are in control or out of control. Once you determine you have a problem, you look for the cause and determine if it is a special cause. You take different paths of thinking depending on what you find out.

But there's no guarantee that applying this traditional [method of] process improvement is going to make a bad system good. It is only going to make a bad system efficient and that's not good. What we have to do when bringing quality into education is to look at the design of the system of education and not simply the processes used to run the system.

Schools have a much bigger agenda than making processes efficient. We have to make sure processes support the whole educational structure and we don't even know what the best structure is right now.

Source: interview with Joann DeMott (1993)

The key to efficient training is remembering that workers in any system have vast reservoirs of knowledge about how the system operates. Tapping these reservoirs only requires asking questions and ensuring that those who need the answers can get them. "We do a lot of cross-training ourselves," Fran Bowling of the Corvallis School District explains. "For example, just by talking to secretaries at the schools we are able to understand each other's jobs and help them service calls."

Beyond imparting knowledge and skills, training can also highlight the interdependent and holistic nature of the system by producing alignment around shared beliefs about children, learning, and opportunities for improvement. This alignment of beliefs and understanding of interdependence of subsystems cannot be imposed. It arises after long hours of self-examination and the continual search for root causes of problems.

Plan, Do, Check, Act

One aspect of TQM that may concern some leaders involves the empowerment of rank-and-file workers to make changes that may, or may not, result in higher quality. In a traditionally managed organization, this loss of compliance and control often produces chaos.

TQM, however, does not promote random changes. First of all, the

stated mission and goals of the system provide a reality check to keep improvements on track. Second, the use of statistical data to continually measure quality ensures that ineffective approaches are redesigned or abandoned in a timely manner. Finally, TQM includes a procedure for making changes that allows their effects to be assessed on a small scale. This procedure is usually called Plan, Do, Check, Act.

Plan

According to Deming, "planning is the foundation of the whole cycle. A hasty start may be wrong, costly and frustrating. People have a weakness to short-circuiting this step. They cannot wait to get into motion, to be active, to look busy, to move into Step 2 (Do). Care in Step 1 may lead to a whole, new more mature idea" (cited in AASA).

In traditional organizations, planning takes a linear form. Objectives are set, resources assigned, and people and resources are then controlled to achieve the objectives. Progress, if it is measured at all, is usually assessed in a way that does not allow midcourse corrections and a chance to improve output. Resources, information, and control flow down the organizational chart. Those at the bottom must fulfill these plans or risk punishment.

In systems practicing TQM, however, those closest to the work plan ways to improve quality. Working in teams, they contribute their understanding of the issues and will be the first to perceive undesirable consequences of flawed plans. Implicit in this approach is an understanding of the shared mission of the system.

Do

Once the plans are formulated, they are carried out on a trial or pilot basis. For example, a new system for evaluating student work might first be tried out in one class before being implemented in the entire school or district.

During this pilot phase, data are constantly collected and compared against desired outcomes. If needed, the pilot program would be adjusted to better achieve the desired outcomes.

Check

When the pilot program is completed, the results are examined. Results include both quantitative assessments of the data along with qualitative feedback from the participants.

Data are again checked against desired outcomes to see if the program fulfills expectations and has a significant impact on the problem. An assessment of the pilot program's effects on other subsystems would also be made

to ensure that the problems created by the initiative do not outweigh the benefits.

Following this assessment, the planning group would decide to either return to step 1 (planning) or act to implement the program on a wider scale.

Act

If the decision is made to go forward, the experiment's design may be adjusted to reflect the results of the data collected. Once the initiative has been implemented, data are constantly collected to ensure that all goals are being achieved and the "cure is not worse than the disease."

Measuring Quality

Given its focus on management style, it is easy to forget that one of the pillars of TQM is the use of statistical analysis to judge the quality of the outcomes. Part of the problem is that measurements in traditionally managed systems are often used to judge people; hence, the numbers alienate because they serve as tools for compliance, control, and command.

In total quality systems, however, data are used to ensure quality, not judge it. It's an important distinction. Ensuring quality means that the data relate directly to the work being accomplished and can be used by the workers to improve the system. By improving the system, the quality of the outcomes improves. As Bonstingl points out, "We are beginning to realize that products of consistently high quality are the result of consistently high-quality processes."

As the system operates, information in the form of measurements is made available to workers so they can ensure that outputs conform to customer specifications. "When you measure specifics," Wilson and Schmoker write, "you also open the doors to instructionally substantive dialogue—giving employees something immediate and concrete to talk about, at and between every level, at any given time."

In any system there will be some variety in the outcomes. In statistics, this variety is called *variation,* and keeping it within defined limits is one of the goals of quality control. Doing this requires measuring the variation produced by the system and taking steps to ensure that it remains within specified limits. The intent is not to eliminate variation but to manage it.

The degree of variation determines whether a system is in control or out of control. In the handbook *Creating Quality Schools*, the AASA describes systems in control as those in which variation in outputs is stable and within defined limits. Consider, for example, a district in which the school buses arrive ten to twenty minutes late because they get stuck in traffic. The

variation is routine and predictable. It can be addressed by changing the routes to less congested roads or changing bus schedules.

In contrast, consider an out-of-control system. In this system the output (time of school bus arrival) varies greatly and may be due to unusual circumstances. For example, one day a single bus arrives thirty minutes late because a new driver is unfamiliar with the route. Several weeks later a different bus is late because the radiator overheated. The next day the door opener on another bus breaks causing it to be late. This system is out of control because the causes of variation fluctuate and are unpredictable. To bring this system back into control, the system must do a better job of training new drivers and maintaining the buses.

> Deming and his track record argue persuasively that it is possible to determine whether a system is becoming better or worse, and he provides concepts and tools for sure-footed actions when the latter is the case.
>
> Source: Stampen (1987)

Reducing variation requires understanding the root causes of the problem. Making changes in the system without understanding the root causes of the problem is called *tampering*. According to the AASA, tampering happens when educators try to eliminate variations by adjusting the system without understanding what other effects tampering will have. Examples of tampering include reacting to one parent's complaint, reacting to rumors or the latest student morale survey, or adjusting the budget based on last year's figures. Each of these actions may not address the root causes of the variation and can create more problems than they solve.

While reducing variation makes sense in manufacturing or in bus scheduling, educators may find that it cannot be directly applied to an analysis of how to educate children. As Enid Brown illustrates:

> Some educators think that Dr. Deming is always seeking ways to reduce variation. In manufacturing processes that makes sense. In people processes it may not. To standardize everything would be one of the worst things we could do. We could reduce variation by eliminating people that do not fit the perfect profile, but that is not what we need. We must provide for the whole broad range of people and find ways to make them all successful, to experience joy in learning. (Brandt)

Measurements and Grades

One area on which TQM exercises a profound influence is the means of evaluating student progress (that is, measuring the quality of education). The basic concepts of TQM appear to contradict the current means used to assess student performance.

Wilson and Schmoker explain

> that when we talk about school "outcomes," it's essential to recognize the distinctions among test scores and various other indicators of success. Indeed, we need to fine tune our understanding of the word, outcomes. The term currently smacks of year-end, standardized test scores—an emphasis that, let's face it, has done as little to improve schools as production quotas have to improve industry. We do need to track some broad benchmarks of success—including dropout rates and the percentage of graduates who go on to college—to measure how our schools are doing. But even these indicators are measured too infrequently and are too remote from the daily and weekly instructional realities that must be our focus if we hope to energize teachers and improve what we do.

Bonstingl wonders if there is

> a place in the quality-focused school for the bell-shaped curve and other artificial determiners of success and failure? If our young people are to succeed, should a given percentage of them be made to feel inferior? What might be the results if industries in this country consciously set out to produce mediocrity or inferiority in two-thirds of their products?

He goes on to say, "It doesn't take long for children to find out where they fit in the five pigeonholes of the bell curve, and the students' narrow academic self-image becomes, all too often, intertwined in self-fulfilling prophecies played out throughout life."

> Research has finally told us what many of us suspected all along: That conventional evaluation, the kind the overwhelming majority of American teachers undergo, does not have any measurable impact on the quality of student learning. In most cases, it is a waste of time.
>
> Source: Schmoker (1992)

Deming often speaks out against numerical quotas since they focus the worker's attention on achieving the quota and not pursuing quality. Sub-systems start to compete to achieve artificial numerical goals and intrinsic motivation suffers. Deming says, "If you have a stable system then there is no use to specify a goal. You will get whatever the system will deliver. If you do not have a stable system, then there is again no point in setting a goal."

He offers six reasons why numerical goals (including such things as merit pay) will not improve quality.

1. The goals are often arbitrarily set. They are often set without sufficient data or set by individuals outside the system. Feedback should come from those closest to the work.
2. Setting quotas leads to marginal work. People focus on achieving the quotas and not producing their best work. If the goal is to pass 70 percent of the students then that will be achieved and little else.

The goals of the top management become the goals of the teachers. Setting goals prevents the intrinsic motivation people need to do their best work.

3. Appraisal of individual performance is unfair and misguided. Most variation in stable systems comes from common and natural causes which are beyond the control of any single worker. Management's job isn't pointing out to people below the median that they have to do better if they are working within the system. Management must improve everyone's performance through training, education and improving the system. Management must also help those with "special" causes of variation.
4. Merit pay destroys teamwork. Teams have a harder time functioning when individuals will be singled out at the end of the year for additional pay. Merit pay rewards people for doing well within a faulty system, not improving the system.
5. Individual appraisal nourishes fear. Evaluation is almost always subjective. Decision is in the hands of the principal. This leads to politics, hidden agendas, hiding of mediocre results, mindless adherence to regulations.
6. A system of individual appraisal increases variability in the desired performance. This is because if some of the people try to earn higher grades the variability in the system would be increased.

The contradiction between the tenets of TQM and the traditional means of assessing student performance (grades) provides a rich source of debate and contention. Clearly, there must be a way to continuously improve the existing system. If TQM teaches anything, it is that educators working in the schools will be the ones to make these improvements. As a school on the forefront of total quality learning, Mt. Edgecumbe High School students and staff don't like grades. But they also know that

A grade [is] . . . an inadequate report of an inaccurate judgement by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite amount of material.

Source: Paul Dressel (1957)

I don't cause teachers trouble.
My grades have been okay.
I listen in my classes,
And I'm in school everyday.
My teachers say I'm average.
My parents think so too.
I wish I didn't know that,
'Cause there's lots I'd like to do.
I'd like to build a rocket;
I've a book that tells you how;
and start a stamp collection.
Well, no use in trying now.
'Cause since I found I'm average
I'm just smart enough to see
It means there's nothing special
That I should expect of me.

Source: Anonymous

colleges won't accept graduates without grades, grade point averages, and class rankings. So, they have developed a portfolio system wherein students compile examples of their work, but the school itself has not significantly changed the traditional grading system (Larrae Rocheleau 1991).

Whatever evaluation system quality-minded educators develop, it will hopefully reflect Rocheleau's feeling that "kids need to be taught at an early stage the joy of learning, not the joy of an A."

Conclusion

A conclusion suggests an ending, a final point in a story or process. But the open-ended nature of total quality does not suggest an end. Perhaps this section should be called "Next Step," or "Now What?" But there is no next step, no single, correct point of departure for using the tools and tenets of Total Quality Management.

There are, however, many valid paths on which to proceed. The books and articles cited in the bibliography will help you build an understanding of quality. The Oregon Department of Education also offers TQM workshops on a regular basis and in 1992 provided grants to six area schools to implement TQM principles. Other educators and administrators who share your interest in quality are out there and, like pioneers on a lonely trail, eager to share news and compare views.

And then there's your own district, a rich lode of data. How much can you learn by simply observing day-to-day activities and asking, "Why?" What new energy can be brought into an organization if people suddenly become aware of their shared mission and are encouraged to go make it happen?

If there is a single, most important payback to seeking quality, a greatest reason to pursue excellence, it would have to be the energy and joy that it unleashes in people. Giving workers a stake in their workplace, involving them in the processes in which they spend up to half their waking hours, is nothing else than emancipation from the compliance and control of outmoded practices.

We may believe that pursuit of quality is something we do for students or society, but in the end, we do it for ourselves. A career spent seeking excellence is just as long as one spent following orders and sliding along the path of least resistance. But where is the quality?

Bibliography

American Association of School Administrators. *Creating Quality Schools*. Arlington, Virginia: Author, 1992.

Aguayo, Rafael. *Dr. Deming: The American Who Taught the Japanese About Quality*. New York: Simon and Schuster, 1990.

Blankstein, Alan M. "Lessons from Enlightened Corporations." *Educational Leadership* 49, 6 (March 1992): 71-75. EJ 441 180.

Bonstingl, John Jay. "The Total Quality Classroom." *Educational Leadership* 49, 6 (March 1992): 66-70. EJ 441 179.

_____. "The Quality Revolution in Education." *Educational Leadership* 50, 3 (November 1992): 4-9.

Brandt, Ron. "On Deming and School Quality: A Conversation with Enid Brown." *Educational Leadership* 50,3 (November 1992): 28-31.

Deming, W. Edwards. *Out of the Crisis*. Cambridge, Massachusetts: Massachusetts Institute of Technology, 1986.

Dressel, Paul. *Basic College Quarterly*, Michigan State University, Winter 1957.

Glasser, William M.D. "Quality, Trust and Redefining Education." *Education Week* (May 13, 1992): 32.

_____. *The Quality School: Managing Students Without Coercion*. New York: Harper and Row, 1990. 171 pages. ED 335 729.

Hixson, Judson, and Kay Lovelace. "Total Quality Management's Challenge to Urban Schools." *Educational Leadership* 50, 3 (November 1992): 24-27.

Langford, David Paul. "Changing Education Systems Through Management and Cooperation." Paper presented at the social section of the 1990 Third Northern Regions Conference: Cooperation in a Changing World, Anchorage, Alaska, September 18, 1990.

Matthews, Jay, and Peter Katel. "The Cost of Quality." *Newsweek* (September 7, 1992): 48-49.

McLeod Willis B., B. A. Spencer, and L. T. Hairston. "Toward a System of Total Quality Management: Applying the Deming Approach to the Educational Setting." *ERS Spectrum* 10, 2 (Spring 1992): 34-41. EJ 444 366.

Melvin III, Charles A. "Translating Deming's 14 Points for Education." *The School Administrator* 48, 9 (November 1991): 19-23. EJ 434 406.

Murgatroyd, Stephen. "A New Frame for Managing Schools: Total Quality Management (TQM)." *School Organisation* 12, 2 (1992): 175-99.

Rhodes, Lewis A. "On the Road to Quality." *Educational Leadership* 49, 6 (March 1992): 76-80. EJ 441 181.

Rocheleau, Larrae. "Mt. Edgecumbe's Venture in Quality." *The School Administrator* 48, 9 (November 1991): 14-18. EJ 434 405.

Scholtes, Peter. *The Team Handbook*. Madison, Wisconsin: Joiner Associates, 1988.

Schmoker, Mike. "What Schools Can Learn from Toyota of America." *Education Week* (May 13, 1992): 23-25.

Sculley, John. "Inside the Mind of Management." Advertisement in *Fortune* (December 3, 1990): 185-87.

Siu-Runyon, Yvonne, and Sally Joy Heart. "Management Manifesto." *The Executive Educator* 14, 1 (January 1992): 23-26. EJ 439 231.

Stampen, J.O. "Improving the Quality of Education: W. Edwards Deming and Effective Schools." *Contemporary Education Review* (Winter 1987).

Texas Association of School Administrators. *Resource Guide for Total Quality Management in Texas Schools*. Austin, Texas: Author, 1992.

Wilson, Richard B., and Mike Schmoker. "Quest for Quality." *The Executive Educator* 14, 1(January 1992): 18-22. EJ 439 230.

Interviews

John Beaston, Teacher, Aloha High School, Aloha Oregon. Telephone interview January 8, 1993.

Fran Bowling, Payroll Specialist, Corvallis Schools, Corvallis, Oregon. Telephone interview December 28, 1992.

Joann DeMott, Consultant, J. DeMott Company, Philomath, Oregon. Telephone interview January 6, 1993.

J. D. Hoye, Associate Superintendent for Professional Technical Education, Department of Education, Salem, Oregon. Telephone interview January 5, 1993.

Rex Krause, 21st Century Schools Council, Department of Education, Salem, Oregon. Telephone interview December 29, 1992.

Kathy Rodeman, Fiscal Services Manager, Corvallis Schools, Corvallis, Oregon. Telephone interview December 28, 1992.

Oregon School
Study Council
University of Oregon
1787 Agate Street
Eugene OR 97403

Nonprofit
Organization
US Postage
PAID
Eugene OR
Permit No. 63

OSSC BULLETIN